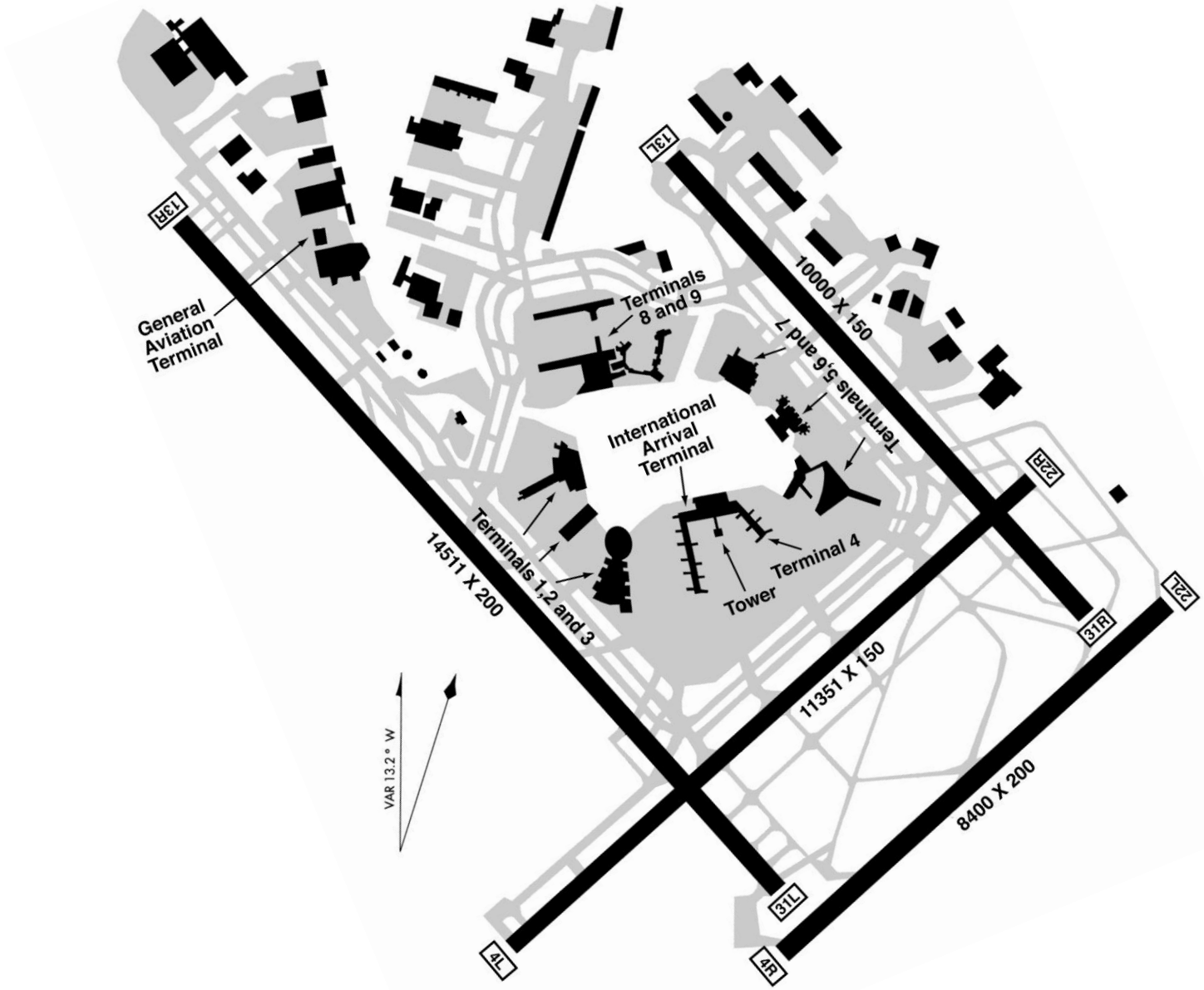
# JFK JOHN F. KENNEDY INTERNATIONAL (NEW YORK)




*Airport capacity profile estimates were created using a standard set of performance characteristics and do not take into account non-runway constraints, unless otherwise noted. The capacity estimates developed for this report are not intended to replace the results of any detailed analysis that would precede an environmental, investment, or policy decision.*

***The list of Future Improvements and their expected effects on capacity does not imply FAA commitment to, or approval of, any item on the list.***

# JFK — John F. Kennedy International (New York)

## Definition

- The capacity profile shows the hourly throughput that an airport is able to sustain during periods of high demand, represented as the range between the model-estimated capacity and the ATC facility reported rate (called rate). Each weather condition has a unique capacity rate range.
- To maximize capacity in good weather, JFK tends to operate in an arrival or departure priority mode, as opposed to a balanced operation. An arrival or departure priority operation is only feasible when the airport's flight schedule is unbalanced for sustained periods of time.
- The operational limits put in place under the Schedule Orders and proposed in the NPRM JFK involve a trade-off between airport throughput and a tolerable level of delay. The Government Accountability Office (GAO) recommended, and FAA agrees, that operational limits for JFK should be established under realistic weather and operating scenarios, not optimal conditions. This can result in less throughput under good weather conditions but helps prevent excessive delays during adverse weather periods.
- The following charts compare actual hourly traffic with the estimated capacity curves for JFK. Some hourly traffic points fall outside the estimated capacity curves. There are many reasons why this may occur without affecting operational safety. For example, more aircraft may have been able to use Runway 31L than were assumed in the analysis. Also, actual weather may have been better for part of the hour than that recorded for the hour, allowing more efficient ATC procedures than were modeled.

## Recent Capacity Improvements at JFK

- Implementation of Traffic Management Advisor (TMA) helps to improve the flow of arrivals to the runways.
- High speed turnoffs and additional runway entrance/exit taxiways have been added to Runway 13R/31L.

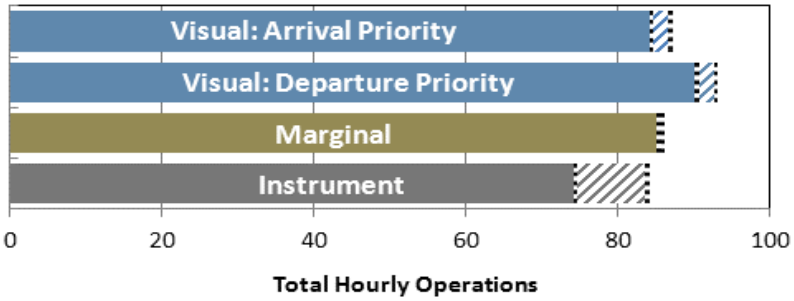
## Future Improvements at JFK

- *Improved Runway Delivery Accuracy*: The combined effects of several new capabilities, including ADS-B Out, CDTI, and TBM in the terminal area, will improve the ability of controllers by 2020 to deliver aircraft to the runway with the desired separation from the preceding aircraft. This will reduce the average spacing between arrivals and boost arrival capacity.
- Additional information on these improvements may be found in this report under "Future Operation Assumptions."

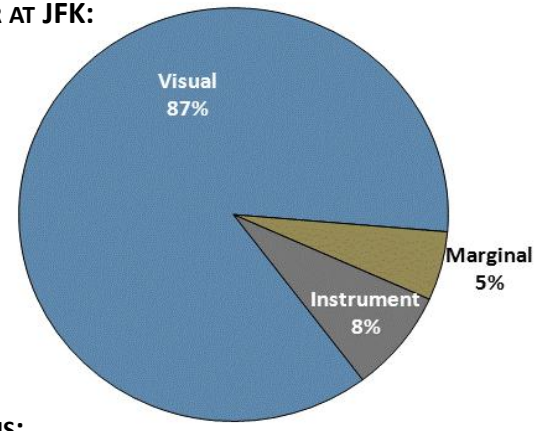
## Data Sources

- Actual hourly JFK operations, weather and configuration data were obtained from the FAA ASPM database, and represent operational hours from 7am to 11pm local time for all of Fiscal Years 2009 and 2010. Actual configuration usage is determined by multiple operational factors, including weather conditions.
- Facility reported rates were provided by ATC personnel at JFK.
- Model-estimated rates are derived from operational information provided by ATC.

## Current Operations Capacity Rate Range




## Annual Weather at JFK:




### Visual Conditions:

- Ceiling and visibility allow for visual approaches: at least 2000 feet ceiling and 4 miles visibility

### Marginal Conditions:

- Ceiling and visibility below visual approach minima but better than Instrument conditions

### Instrument Conditions:

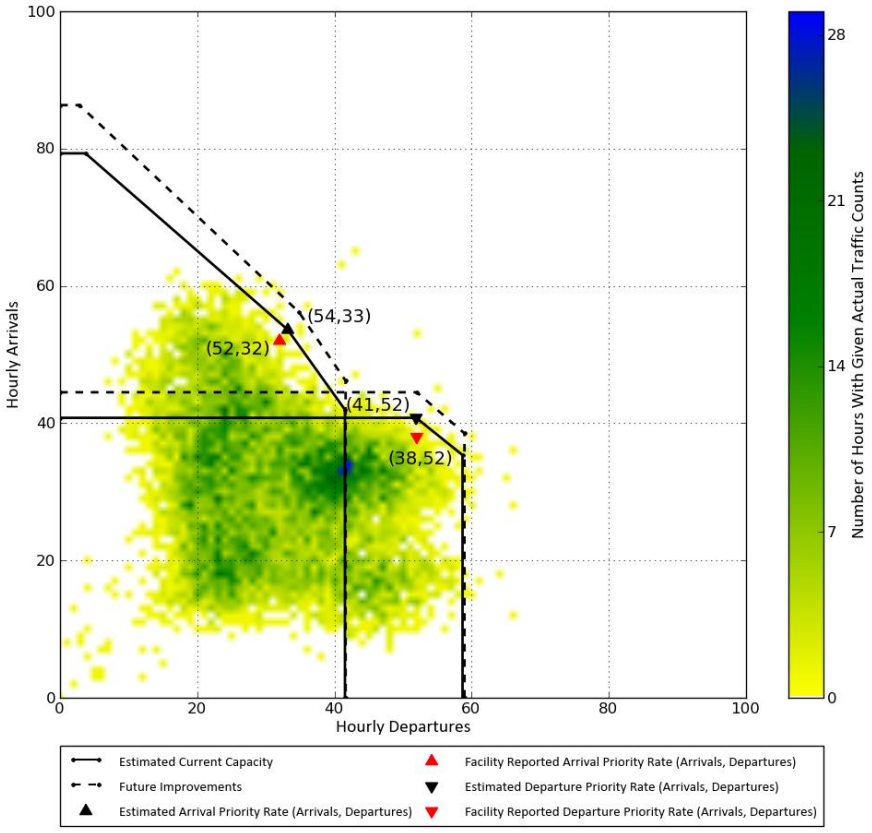
- Ceiling and visibility below 1000 feet ceiling or 3 miles visibility

# VISUAL

# JOHN F. KENNEDY INTERNATIONAL (NEW YORK)

| JFK Scenario | | Arrival Runways | Departure Runways | Procedures | Hourly Rate | |
|---|---|---|---|---|---|---|
| | | | | | ATC Facility Reported | Model-Estimated |
| **CURRENT OPERATIONS** | ARRIVAL PRIORITY | 13L, 22L | 13R | Visual Approaches, Visual Separation | 84 | 87 |
| | DEPARTURE PRIORITY | 22L | 22R, 31L | | 90 | 93 |
| **FUTURE IMPROVEMENTS** Improved Runway Delivery Accuracy | ARRIVAL PRIORITY | 13L, 22L | 13R | | N/A | 91 |
| | DEPARTURE PRIORITY | 22L | 22R, 31L | | N/A | 97 |

## VISUAL WEATHER CONDITIONS



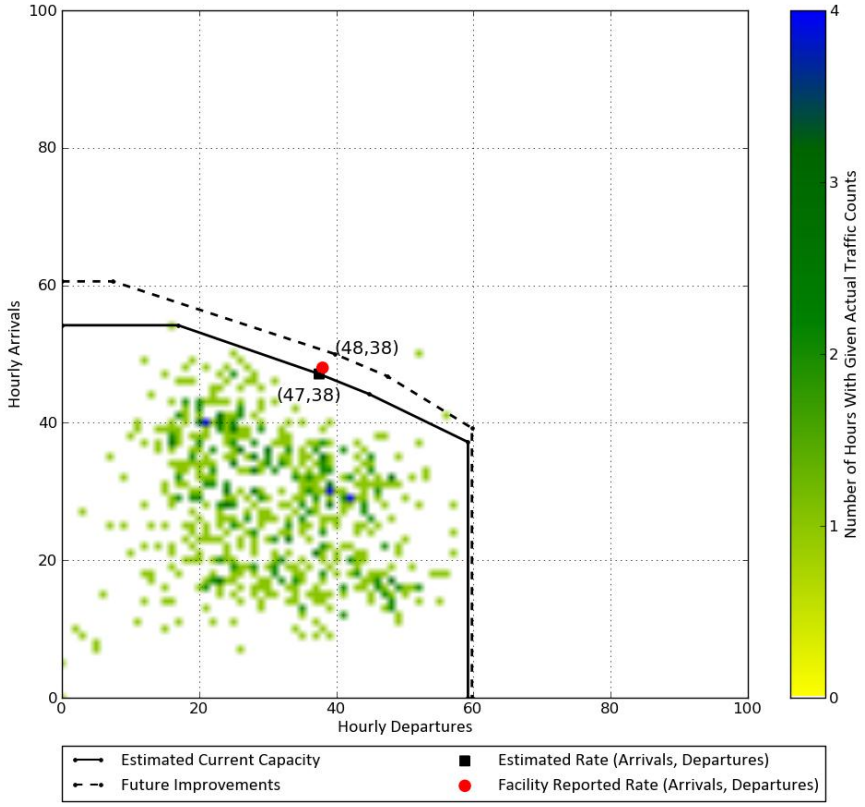

- The capacity rate range in Visual conditions is currently 84-87 operations per hour in arrival priority, and 90-93 in departure priority.
- The airport operates in the arrival priority mode of this configuration approximately 7% of the time in Visual weather conditions (totaling 6% annually).
- The airport operates in the departure priority mode of this configuration approximately 13% of the time in Visual weather conditions (totaling 11% annually).
- Runway 13R/31L was closed from March through June of 2010, so the percentages cited above include hours during which this configuration was not available.
- In this configuration ,JFK has a limited number of operations on Runway 31L due to departure fix and airspace considerations. Departures from Runway 31L begin takeoff roll after the intersection with Runway 4L.
- This profile does not take into consideration operating configurations at nearby airports such as EWR, LGA, or PHL. In particular, the NY/NY/PHL airspace is complex and highly interconnected. Departure or arrival patterns at one airport can impact capacity at nearby airports.

# MARGINAL

# JOHN F. KENNEDY INTERNATIONAL (NEW YORK)

| JFK Scenario | Arrival Runways | Departure Runways | Procedures | Hourly Rate | |
|---|---|---|---|---|---|
| | | | | ATC Facility Reported | Model-Estimated |
| **CURRENT OPERATIONS** | 4R, 4L | 4L, 31L | Dependent Instrument Approaches, Visual Separation | 86 | 85 |
| **FUTURE IMPROVEMENTS** Improved Runway Delivery Accuracy | 4R, 4L | 4L, 31L | | N/A | 90 |

## MARGINAL WEATHER CONDITIONS



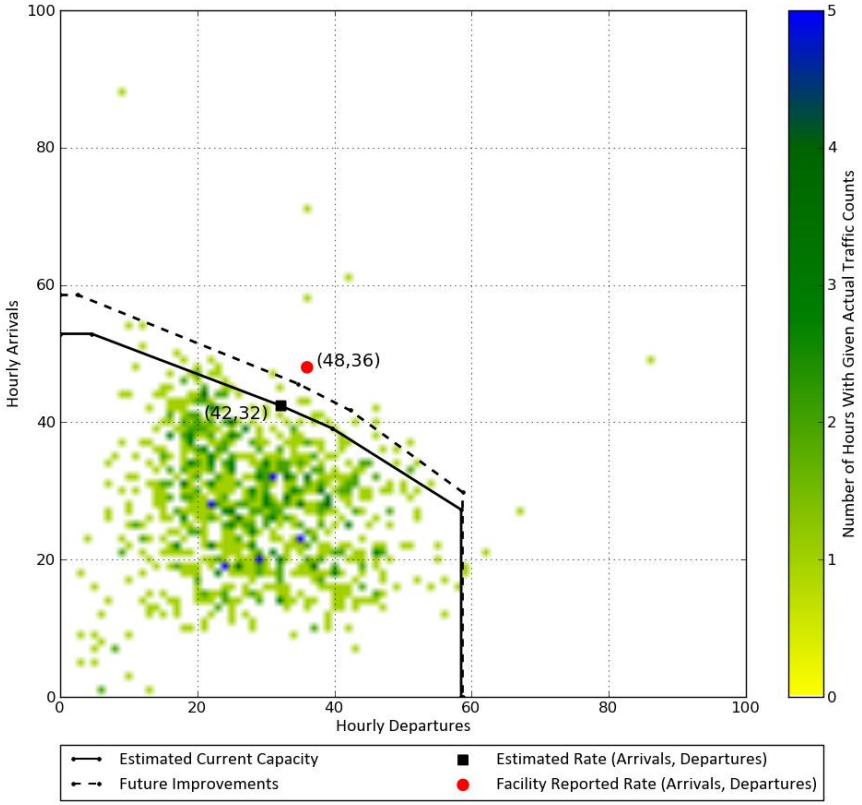

- The capacity rate range in Marginal conditions is currently 85-86 operations per hour.
- The airport operates in variations of this configuration approximately 38% of the time in Marginal weather conditions (totaling 2% annually).
- Runway 13R/31L was closed from March through June of 2010, so the percentages cited above include hours during which this configuration was not available.
- In this configuration, JFK has a limited number of operations on Runway 31L due to departure fix and airspace considerations. Departures from Runway 31L begin takeoff roll after the intersection with Runway 4L.
- This profile does not take into consideration operating configurations at nearby airports such as EWR, LGA, or PHL. In particular, the NY/NY/PHL airspace is complex and highly interconnected. Departure or arrival patterns at one airport can impact capacity at nearby airports.
- Reduced separation (2.5 NM) between arrivals is authorized for approaches to Runway 4R at JFK.

# INSTRUMENT

# JOHN F. KENNEDY INTERNATIONAL (NEW YORK)

| JFK Scenario | Arrival Runways | Departure Runways | Procedures | Hourly Rate | |
|---|---|---|---|---|---|
| | | | | ATC Facility Reported | Model-Estimated |
| **CURRENT OPERATIONS** | 4R, 4L | 4L, 31L | Dependent Instrument Approaches, Radar Separation | 84 | 74 |
| **FUTURE IMPROVEMENTS**<br>Improved Runway Delivery Accuracy | 4R, 4L | 4L, 31L | | N/A | 81 |

## INSTRUMENT WEATHER CONDITIONS




- The capacity rate range in Instrument conditions is currently 74-84 operations per hour.
- The airport operates in variations of this configuration approximately 32% of the time in Instrument weather conditions (totaling 3% annually).
- Runway 13R/31L was closed from March through June of 2010, so the percentages cited above include hours during which this configuration was not available.
- In this configuration, JFK has a limited number of operations on Runway 31L due to departure fix and airspace considerations. Departures from Runway 31L begin takeoff roll after the intersection with Runway 4L.
- Reduced separation (2.5 NM) between arrivals is authorized for approaches to Runway 4R at JFK.
- This profile does not take into consideration operating configurations at nearby airports such as EWR, LGA, or PHL. In particular, the NY/NY/PHL airspace is complex and highly interconnected. Departure or arrival patterns at one airport can impact capacity at nearby airports.